



SEQUENCE LISTING

<110> Yamamoto, Hiroaki
Onodera, Keiko
Tani, Yoshiki

<120> NOVEL (R)-2,3-BUTANEDIOL DEHYDROGENASE

<130> 06501-092001

<140> 10/020,674

<141> 2001-10-30

<150> JP 2000-333363

<151> 2000-10-31

<160> 17

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 1143

<212> DNA

<213> Pichia angusta

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acggacttga aagaattcac atattctgga ggtcctgttt tttccctaa acaaggcacc	180
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gtcaaggact tccaggaagt tgtcaaggcc ttggaagatg gtctcatatc tttggacaaa	1020
gcgcgcaaga tgattacagg caaagtccac ctaaaggacg gagtcgagaa gggctttaa	1080
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<210> 2

<211> 380

<212> PRT

<213> Pichia angusta

<400> 2

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 20 25 30
 Val Ser Tyr Cys Gly Ile Cys Gly Thr Asp Leu Lys Glu Phe Thr Tyr
 35 40 45
 Ser Gly Gly Pro Val Phe Phe Pro Lys Gln Gly Thr Lys Asp Lys Ile
 50 55 60
 Ser Gly Tyr Glu Leu Pro Leu Cys Pro Gly His Glu Phe Ser Gly Thr
 65 70 75 80
 Val Val Glu Val Gly Ser Gly Val Thr Ser Val Lys Pro Gly Asp Arg
 85 90 95
 Val Ala Val Glu Ala Thr Ser His Cys Ser Asp Arg Ser Arg Tyr Lys
 100 105 110
 Asp Thr Val Ala Gln Asp Leu Gly Leu Cys Met Ala Cys Gln Ser Gly
 115 120 125
 Ser Pro Asn Cys Cys Ala Ser Leu Ser Phe Cys Gly Leu Gly Gly Ala
 130 135 140
 Ser Gly Gly Phe Ala Glu Tyr Val Val Tyr Gly Glu Asp His Met Val
 145 150 155 160
 Lys Leu Pro Asp Ser Ile Pro Asp Asp Ile Gly Ala Leu Val Glu Pro
 165 170 175
 Ile Ser Val Ala Trp His Ala Val Glu Arg Ala Arg Phe Gln Pro Gly
 180 185 190
 Gln Thr Ala Leu Val Leu Gly Gly Gly Pro Ile Gly Leu Ala Thr Ile
 195 200 205
 Leu Ala Leu Gln Gly His His Ala Gly Lys Ile Val Cys Ser Glu Pro
 210 215 220
 Ala Leu Ile Arg Arg Gln Phe Ala Lys Glu Leu Gly Ala Glu Val Phe
 225 230 235 240
 Asp Pro Ser Thr Cys Asp Asp Ala Asn Ala Val Leu Lys Ala Met Val
 245 250 255
 Pro Glu Asn Glu Gly Phe His Ala Ala Phe Asp Cys Ser Gly Val Pro
 260 265 270
 Gln Thr Phe Thr Thr Ser Ile Val Ala Thr Gly Pro Ser Gly Ile Ala
 275 280 285
 Val Asn Val Ala Val Trp Gly Asp His Pro Ile Gly Phe Met Pro Met
 290 295 300
 Ser Leu Thr Tyr Gln Glu Lys Tyr Ala Thr Gly Ser Met Cys Tyr Thr
 305 310 315 320
 Val Lys Asp Phe Gln Glu Val Val Lys Ala Leu Glu Asp Gly Leu Ile
 325 330 335
 Ser Leu Asp Lys Ala Arg Lys Met Ile Thr Gly Lys Val His Leu Lys
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 355 360 365
 Asn Val Lys Ile Leu Val Thr Pro Asn Glu Val Ser
 370 375 380

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<213> *Pichia angusta*

<400> 3

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10

<210> 4

<211> 21
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 <213> *Pichia angusta*

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 Gln Asp Leu Gly Leu
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<210> 5
 <211> 6
 <212> PRT
 <213> *Pichia angusta*

<400> 5
 Phe His Ala Ala Phe Asp
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<210> 6
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 <222> 6, 9, 15, 18
 <223> n = a, c, g, or t

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<210> 7
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<221> misc_feature
 <222> 9, 12
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<210> 8
 <211> 530
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 <213> *Pichia angusta*

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tgctgtgcgt	cgctgagctt	ctgcggtttg	ggtggtgcc	gcggcggttt	tgccgagtac	180
gtcgtttacg	gtgaggacca	catgggtcaag	ctgccagact	cgattcccga	cgatattgga	240
gcactgggtg	agcctatttc	tggtgcctgg	catgctgttg	aacgcgctag	attccagcct	300
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gcaaaggaa	tgggcgctga	agtgttcgat	ccttctacat	gtgacgacgc	aaatgctgtt	480
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<210> 9

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially synthesized primer sequence

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26

<210> 10

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially synthesized primer sequence

<400> 10

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27

<210> 11

<211> 107

<212> DNA

<213> Pichia angusta

<400> 11

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107

<210> 12

<211> 706

<212> DNA

<213> Pichia angusta

<400> 12

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aatgcgcgtc	aatgtggccg	tttggggaga	ccaccaatt	ggattcatgc	caatgtctct	180
gacttaccag	gagaaatacg	ctaccggctc	catgtgctac	accgtcaagg	acttccagga	240
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aggcaaaagtc	cacctaaaag	acggagtcga	gaagggcttt	aaacagctga	tcgagcacia	360
ggagaacaat	gtcaagatcc	tggtagacgc	gaacgaggtt	tcctaactaa	taatatacat	420
acatcataca	tatgtatgtc	ctagagccaa	gacttgcgca	ttaggaaaaa	tagctggtag	480

tttgcattat ggtggccggc ctcccaggaa attaattctat gatttacata tggactcgat	540
tacgtaacag gtgctgagca ttttaataatt acctactatt ttctaaatta gtaaattgta	600
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<210> 13
 <211> 620
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 <213> *Pichia angusta*

<400> 13	
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gaattttccg cgctaattcca gtcaacggta acaagaccag gatggagttt gaatatttct	180
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gcttgctgca tcctaaaaaa gaagtcgggg tggtttacta ccagtcgctg gttcgtgaaa	360
gaataatggc ttagctccga gatgtggagg cagtctggtc agactgtgcg gcaattaaat	420
aagacgcgga tgtactgcac cagagtgaat aaaggaattc caattcgata gcaaattattg	480
ctgtaataat gagtgaccag atttattacc gaacctagcc agcccggggt tttttacaca	540
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<220>
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<210> 15
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 <213> *Pichia angusta*

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ggaaattagc cggcactcgg ttgtgagaga ttatctata taaaccacaa aatcctatct	180
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cggttcctga accggagatc aagaatccca acgatgtcaa gatcaaagtc agctattgtg	300
gaatctgtgg cacggacttg aaagaattca catattctgg aggtcctgtt tttttcccta	360
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<210> 16
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<220>
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<400> 16
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30

<210> 17
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> Artificially synthesized primer sequence

<400> 17
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28